

Amendments to the Claims:

1. (Previously Presented) A radio frequency coil system for magnetic resonance imaging, the coil system comprising:
 - a plurality of parallel spaced apart rungs which each includes rung capacitors;
 - 5 an end cap disposed at a closed end of the coil system; and
 - an RF shield which is connected to the end cap and surrounds the rungs extending in a direction substantially parallel to rungs.
2. (Previously Presented) The coil system as set forth in claim 1, wherein the RF shield is partially or wholly constructed of electrically conductive mesh or other conductive material with properties of at least partial optical transparency in a wavelength range of human vision.
3. (Previously Presented) The coil system as set forth in claim 1, further including:
 - an end ring disposed at an closed end of the coil system and being coupled to the rungs, the end ring having capacitors between neighboring rungs.
4. (Currently Amended) The coil system as set forth in claim 3, wherein the rungs are directly connected to the RF shield at an open end.
5. (Previously Presented) The coil system as set forth in claim 1, further including:
 - an end ring disposed at an open end of the coil system and being coupled to the rungs, the end ring having capacitors between neighboring rungs.
6. (Previously Presented) The coil system as set forth in claim 5, wherein each pair of neighboring rungs is further coupled through closed end capacitors to define individual independent current loops or meshes.

7. (Previously Presented) The coil system as set forth in claim 6, wherein the capacitors are selected to decouple the current loops or meshes to define a transmit/receive coil array forming a plurality of individual transmit/receive channels, such that each loop has selected phase and amplitude characteristics.

8. (Currently Amended) The coil system as set forth in claim 5, wherein at least one of the end ring and the rungs are capacitively coupled to the RF ~~screen~~-shield adjacent the open end via capacitors to define a current path through the RF ~~screen~~-shield.

9. (Previously Presented) The coil system as set forth in claim 8, wherein the coil system is a transmit/receive coil and a volume coil.

10. (Previously Presented) The coil system as set forth in claim 9, further including:

inductors connected between at least one of the end ring and the rungs to define a third resonance mode.

11. (Previously Presented) The coil system as set forth in claim 5, wherein the rung and end ring capacitors are selected to tune the coil system to a resonance frequency in one of:

- a low-pass mode,
- a high-pass mode, and
- a bandpass mode.

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12. (Previously Presented) The coil system as set forth in claim 1, wherein the rungs are directly connected to the end cap.

13. (Currently Amended) The coil system as set forth in claim 1, wherein the rungs are capacitively coupled to the RF ~~screen~~-shield.

14. (Previously Presented) The coil system as set forth in claim 1, wherein pairs of the rungs are coupled by open end capacitors to define individual meshes and further including:

5 couplings coupled to adjacent meshes, the couplings including one of:
 capacitive decouplings,
 inductive decouplings,
 impedance transformers, and
 overlapping portions of the individual meshes.

15. (Previously Presented) The coil system as set forth in claim 14, wherein the coil system is tuned by the rung capacitors, the open end capacitors, and the couplings to one of a volume mode and a SENSE mode.

16. (Previously Presented) The coil system as set forth in claim 15, wherein the couplings include switching components for selectively switching between the volume mode and the SENSE mode.

17. (Previously Presented) The coil system as set forth in claim 16, wherein each rung is directly connected to the end cap and each mesh includes the end ring capacitor disposed at an open end of the coil system.

18. (Previously Presented) The coil system as set forth in claim 17, wherein each pair of the rungs of each mesh is further coupled by a closed end capacitor to define individual independent current loops.

19. (Previously Presented) A method of using the coil system of claim 1 comprising:

 coupling an end ring to an open end of the coil system, the end ring having open end capacitors between neighboring rungs to define a bandpass mode.

20. (Currently Amended) The method as set forth in claim 19, further including:

coupling each pair of neighboring rungs through closed end capacitors to define individual independent current loops; and

5 proportioning the ~~strip-rung~~ and open end capacitors to decouple the current loops to define a transmit/receive coil array.

21. (Previously Presented) The method as set forth in claim 19, further including:

capacitively coupling at least one of the end ring and the rungs to the RF screen adjacent the open end via capacitors to define a current path through the RF
5 screen; and

tuning the capacitors to a high resonance frequency to define a dual resonance mode, wherein the coil system is a transmit/receive coil and a volume coil.

22. (Currently Amended) The method as set forth in claim 19, further including:

coupling pairs of the rungs by the open end capacitors to define individual meshes;

5 coupling adjacent meshes by one of:

capacitive couplings,

inductive couplings,

impedance transformers, and

overlapping portions of the individual meshes.

23. (Previously Presented) The method as set forth in claim 19, further including:

tuning the coil system by the rung capacitors, the open end capacitors, and the couplings to one of a volume mode and a SENSE mode.

24. (Previously Presented) A magnetic resonance imaging scanner including:

- a magnet producing a main magnetic field;
- a plurality of magnetic field gradient coils arranged to produce
- 5 magnetic field gradients to the main magnetic field; and
- the radio frequency coil system **as set forth in claim 1**, the rungs extending in a direction substantially parallel to the main magnetic field.